

Title (en)  
DISPLAY DEVICE WITH TRANSPARENT ILLUMINATOR

Title (de)  
ANZEIGEVORRICHTUNG MIT TRANSPARENTER BELEUCHTUNGSVORRICHTUNG

Title (fr)  
DISPOSITIF D’AFFICHAGE AVEC ILLUMINATEUR TRANSPARENT

Publication  
**EP 4256383 A1 20231011 (EN)**

Application  
**EP 21831438 A 20211204**

Priority  

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- US 202117321121 A 20210514
- US 202117401160 A 20210812
- US 2021061919 W 20211204

Abstract (en)  
[origin: US2022179211A1] A display device with a transparent illuminator and an liquid crystal (LC) display panel is disclosed. The transparent illuminator includes a light source and a transparent lightguide, which may be based on a slab of transparent material with zigzag light propagation of the illuminating light in the slab and/or a transparent photonic integrated circuit with singlemode ridge waveguides for spreading the illuminating light in a plane parallel to the plane of LC display panel. The lightguide includes a plurality of grating out-couplers whose position is coordinated with positions of LC pixels for higher throughput. A reflective offset-to-angle optical element may be provided to form an image in angular domain through the LC panel and through the transparent illuminator, resulting in an overall compact and efficient display configuration.

IPC 8 full level  
**G02B 5/18** (2006.01); **G02B 27/01** (2006.01)

CPC (source: EP US)  
**G02B 5/1819** (2013.01 - EP); **G02B 6/0028** (2013.01 - EP); **G02B 6/0035** (2013.01 - EP); **G02B 6/005** (2013.01 - US); **G02B 6/0078** (2013.01 - US); **G02B 6/124** (2013.01 - EP); **G02B 27/0093** (2013.01 - EP); **G02B 27/0172** (2013.01 - EP US); **G02B 27/0179** (2013.01 - US); **G02F 1/133536** (2013.01 - US); **G02F 1/133553** (2013.01 - US); **G02F 1/13362** (2013.01 - EP); **G02F 1/133622** (2021.01 - EP); **G02B 2006/12097** (2013.01 - EP); **G02B 2006/1215** (2013.01 - EP); **G02B 2027/0138** (2013.01 - EP); **G02B 2027/0178** (2013.01 - US); **G02B 2027/0187** (2013.01 - EP US); **G02F 1/133524** (2013.01 - US); **G02F 1/133526** (2013.01 - US); **G02F 1/133606** (2013.01 - US); **G02F 1/133621** (2013.01 - US)

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**US 11740471 B2 20230829; US 2022179211 A1 20220609; EP 4256383 A1 20231011**

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